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Medical Education

Surgical Training in Libya: The Way Forward

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ABSTRACT

The General Surgical Training Programmes worldwide are designed to ensure that the advanced surgical trainee in surgery achieves competency in knowledge, skill and attitude, both operative and non-operative in a wide range of common surgical conditions, enabling the trainee to practice competently as a surgeon.

Therefore, the goal of the surgical training is to train broad-based, highly qualified surgical specialists who can provide excellence in the care of patients with a wide range of surgical diseases. To this end we have to strive to a training programme that emphasizes education over service, training in all major surgical subspecialties, and strong academic affiliations.

INTRODUCTION

Surgeons today need to acquire knowledge and skills that reach beyond the classic teaching models of surgical education, and cover such variety of topics as leadership, health care management and finance, and so forth. At the same time, the landscape of surgery is constantly changing. Worldwide, new standards and criteria have been produced for accreditation of health care facilities used for training [1,2]. The existing curriculum for each of the nine specialties has been remodelled to a competence-based format in line with the abilities required to undertake the essential roles of a surgeon [3]. A new basic surgical skills education and training course has been developed, with simulation playing an increasing role in all courses. Trainees' progress is assessed by workplace-based assessment and formal examinations, including an exit exam.

The sustained production of sufficient competent surgeons to meet society needs encompasses many challenges including the recruitment of appropriate graduates and the availability of adequate educational and clinical resources to train them.

We believe there is a strong demand for more clinical accountability and the application of innovative technology to the surgical training programmes [4]. Each of these factors requires significant revisions to our current approaches to surgical training in Libya.

TRAINING FOR GREATER EXPERTISE IN SURGICAL CARE

The single clearest statement of the general roles required of the medical training in general, is that made by the Can MEDS 2000 project [5], now being incorporated into each residency programme in many developed countries. The Can MEDS framework provides a useful structure for reviewing the changes that any training programme must undertake if it is to provide relevant training. Our discussion will centre on the core competencies of the surgical trainee, collaborator, communicator, and scholar, the roles comprising the greatest portion of surgical training.

Trainee competencies must be clearly articulated. Longitudinal programmes to teach them and tools to measure their attainment must be developed. Further, the apprenticeship model of training, which emphasizes sequential training blocks (rotations), must be modified to incorporate longitudinal tracking of skill development

through logbooks and regular, standardized assessments.

There is a revolution taking place in the modern practice of surgery. This surgical revolution has evolved out of the so-called "information age" of the late 20th century and early 21st century. We are witnessing an explosion in newer technologies that combine the biological, physical, and information sciences into systems that enhance technological performance well beyond previous limitations. The current trend in surgery toward minimally invasive and non-invasive therapeutic procedures is another result of newer technologies generated by information science [6,7]. This trend represents a switch from direct, hands-on surgical approaches to indirect, "hands-off" approaches (e.g. laparoscopic, catheter-based, robot-aided, and computer-aided procedures). This switch coincides with moves by surgeons from unimodal therapy (eg, resection and reconstruction) to multimodal therapy (e.g. biologically tagged, image-guided, and dexterity-enhanced procedures). Therefore, the basic clinical training (BCT) in Libya should evolve from a general year to a year providing essential grounding in medical skills and knowledge relevant to the various branches of surgery. More elective time within the years 2 to 5 will also need to be available for rotations, particularly for those interested in research, and basic science studies [8,9,10].

Little published literature describes accurate evaluation and assessment of surgical residents' technical competencies. Work-hour limitations and the proposed changes in training duration challenge our ability to provide core technical competencies, particularly during the first two years of the Basic Surgical Training. The minimally invasive surgery is a particularly challenging competency training area, requiring significant allocation of resident and faculty time and resources, with inconsistent training results. Recent advances in virtual reality technology have demonstrated its potential for enhancing surgical skills training, and many virtual reality systems are now commercially available. Virtual reality provides the opportunity for very detailed feedback and may allow for more subtle measurement of trainee performance than is possible in the real world. Measures of precision and accuracy as well as error rates can be calculated easily. Two prospective trials have demonstrated that residents who have been trained on low fidelity (not very lifelike) virtual reality models (laparoscopic box trainers) make fewer intra-operative errors when performing a laparoscopic cholecystectomy than do residents who have not had the benefit of simulation training [11,12].

The accelerated growth of computer technology that began in the 1970s has paved the way for many dramatic changes in medicine, such as advances in medical imaging technology (ultrasound, CT and MRI scanning). Computer-based digital imaging technology has become an integral part of surgical therapy through its integration at all levels of surgical care. Departure from traditional two-dimensional (2D) imaging (i.e., radiographs) to the 3D visualizations available through such technologies as CT scanning and virtual reality has offered effective new tools for preoperative diagnostics and planning, intra-operative navigation, and robotic surgery. Training in this day and age, means finding flexible ways for the trainee to master these new diagnostic and therapeutic technological advances and to acquire the core competencies of their subspecialty. Competencies that cannot be provided locally can likely be met through electives or fellowships taken in larger centers.

ROLE OF CONSULTANT

Training programmes must ensure that residents are experienced in efficient clinic- and team-based treatment models. Emphasis on the trainee –trainer ratio should be 1:1, as recommended by most training programmes, to ensure responsibility and accountability for training. Training units should be adequately funded and regularly assessed and the outstanding trainer should be awarded to encourage the teaching and training environment. We have to encourage the transfer of knowledge to the future surgeons and to promote the culture of training [13,14,15].

ROLE OF COMMUNICATOR

Communication skills are essential to the surgical practice but, as with many other fundamentals, are neither taught nor evaluated systematically [16]. Evaluations of the communication skills identify, for instance, whether a resident can clearly and empathically convey to patients their diagnosis and treatment options; or clearly ask a question to a colleague when seeking a consultation; or write clear, concise progress notes; or dictate a focused, relevant consultation letter with clear treatment options [17]. Therefore, communication skill courses

should be integrated to the training programmes.

ROLE OF SCHOLAR

Attaining competency as a scholar requires developing critical appraisal skills, a plan for lifelong learning, and for those pursuing research careers, investigational skills. Of these, only investigational skills are evaluated and only through the uncompromising school of grant acceptance or refusal. The other skills cannot be assessed until they have been operationalized: it is possible to see critical appraisal skills assessed through phenomenology, diagnosis, and management stations (PDMs) or written examination, but systematic training must first be implemented. Journal clubs, the traditional method of attempting to promote critical appraisal, do not develop these skills and a more focused approach is required.

It is unlikely that more than 10% of the trainees will pursue a research career, but this vital group of residents requires particularly close attention: research training requires close mentorship, protected time, and participation in clinical- investigator training programmes or Masters programmes in research methodology [18].

EVALUATION OF COMPETENCY

Competency-based surgical residency training is rapidly becoming the norm across surgical specialties. Ensuring those surgical trainees are competent to deliver the necessary services and skills to their patients remains the main objective of training programmes. Surgical training evaluations are almost entirely based on rotation evaluation forms that programmes are redesigning to reflect the training programmes competencies discussed above. Unfortunately, rotation evaluations are notoriously unreliable. More accurate assessment of trainee competency will depend on clear description of the particular skills being assessed; on use of more standardized tools, such as Objective Structured Clinical Examinations (OSCEs), learning modules, and written examinations; and on comprehensive evaluations involving not just the immediate supervisor but also team members, patients, fellow residents, and other surgeons. More comprehensive assessments can be done through Web-based evaluation software, already used in some medical programmes. Such evaluation will provide more timely and anonymous feedback to the trainee and will be more accurate than the now-common single-supervisor evaluation. In addition, competency will need to be linked to experience. Although repetition does not guarantee competence, lack of repetition all but ensures incompetence [19,20,21].

CONCLUSION

Knowledge is the most powerful tool we possess as surgeons. The Libyan surgical training programme should strive to foster an environment of learning and research (basic and clinical), which enables our graduates to critically appraise surgical literature and keep abreast of surgical advances years after graduating.

As we move into the future, one of the many challenges of surgical education will be the need to obtain training in areas not traditionally covered in medical school or many hospital training programmes. These areas consist of leadership development and associated non clinical skills.

External Mandates already have irrevocably changed the surgical training all over the world. How do we stand prepared to address the increasingly stringent credentialing for new minimally access and minimally invasive surgical procedures, and evidence based medicine surgical practice?

Therefore, surgical trainees today face the challenge of not only becoming proficient clinically but also acquiring a new knowledge of new techniques and developing fundamental skills of leadership, advocacy, and policymaking in order to become effective surgical leaders for tomorrow.

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